TECHNOLOGY USE: TIME-IN OR TIME-OUT?

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Abstract

This paper investigates evolving technology use by applying the distinction of time-in and time-out usage. This distinction describes how uses of technology within the life-world (i.e. the ordinary, the un-reflected) can be punctuated by time-out use when a user takes out time to consciously use or reflect on a medium. Data was collected through a longitudinal field study involving focus groups, interviews, and surveys from smart phone users during a six-month period. We have adopted a theoretically informed grounded approach to analyze our empirical data and present rich data. The results show how technology use evolves over time and provides theoretical explanation as to why usage changes with time. The time-in/out distinction shows how the value of an "extraordinary device" changes over time, thus accomplishing sensitivity to the artifact by examining the flow of activities. By repurposing the time-in/out distinction from its origin in media- and communications theory, this paper marks a pragmatic move that allows the distinction to be applied to more deeply understand the adoption and appropriation of technology products.

Keywords: Technology use, Mobile technology Smart phones, Time-out technology usage.

1 INTRODUCTION

Changes in technology and new product releases are often greeted with bold claims that the way people conduct their lives will be changed forever. At the present time, mobile computing offers the promise of a technological revolution. The adoption of smart phone technology, which originally made gains in the business community, has recently exploded within the consumer market. The global sales during 2008 were 139 million units (Gartner 2009a) and the latest sales figures for the second quarter 2009 is 41 million sold units (Gartner 2009b). Now, millions of users have a single device with the potential to integrate many of the functions that previously required multiple technology artifacts such as mobile phones, computers, mp3 players, cameras, and GPS units.

The global diffusion of smart phones has begun to attract research covering a range of subjects, including reviews of technical features (Chang & Cheng 2009), energy management for Wi-Fi radios in smart phones (Agarwal & Chandra 2007), the trade off between security and smart phone functionality in health care (Bones 2007), adoption in the workplace (Chen & Yen 2009, Kim 2008, Park & Chen 2007), and the usefulness of smart phones in social science research (Raento 2009). However, there is little research focusing on the use and the continued use of smart phones. One exception is Burdette and Herchline (2008) study of smart phone use in healthcare. Karahanna, Straub and Chervany (1999) and Holbrook (2006) have calls for research that explores the factors differentiating the drivers of initial adoption from those influencing continued use over time. This gap is further emphasized by Blechar, Constantiou, and Damsgaard (2006), who stress the need to seek the underlying motives or values that drive users to adopt, use and consume technology in general and mobile phones in particular. Mazmanian, Orlikowski and Yates (2006) in their study of social implications of Blackberry usage similarly call for more research on processual, sensemaking, and practice based studies of specific technologies.

Given the limited understanding of smart phone use and the rapidly increasing diffusion of smart phones, there is a need to understand how people use mobile technologies for their everyday life, and how the usage changes over time. Is it a question of task-device fit? Is it a choice of the most convenient and available technology? Or is it related to ways in which technology products oscillate between being ordinary and extraordinary, un-reflected and reflected? To answer these questions we need insight into the everyday smart phone use. This paper applies the conceptual lens of *time-in/out* technology usage, inspired by Jensen's (1995) distinction. This distinction describes how uses of technology within the life-world (i.e. the ordinary, the un-reflected everyday) can be punctuated by time-out use when a user takes out time to consciously use or reflect on a technology. The argument for time-in/out is that looking at the attributes of technology and its usage requires a distinction that highlights the change (in terms of quantity and quality) in attention and reflection given to a technology over time. The time-in/out distinction is applied to data gathered during a longitudinal field study in which 16 people received smart phones in exchange for providing data about their usage and experiences. The participants used the phones in their daily lives rather than in a controlled setting.

While the change of a technological artifact from extraordinary to ordinary is often observed, there is little theoretical understanding of the phenomenon. To provide a theoretical approach to understanding this change, this paper introduces the time-in/out distinction to IS adoption and use research. It answers several calls for research on the continuous use of technology in general and mobile technology specifically. The time-in/out distinction shows how the value of an "extraordinary device" changes over time. By repurposing the time-in/out distinction from its origin in media- and communications theory, this paper marks a pragmatic move that allows the distinction to be applied to adoption and appropriation aspects of technology products to better understand the "why" and "how" underlying the change from special to mundane.

This paper is structured as follows: the first section explains the time-in/out distinction. The subsequent section describes the research approach, including context, data collection and data

analysis. The subsequent section presents the empirical findings. This is followed by the analysis. A discussion addressing the theoretical implications of the findings follows. Finally, concluding remarks brings the paper to a close and point to further research avenues.

2 TIME-IN / TIME-OUT DISTICTION

The distinction between time-in/ time-out usage stems from a sports metaphor in which time-out activities always occur within the time-in of a game (Jensen 1995). The distinction describes how uses of media or technology within the life-world (i.e. the ordinary, the un-reflected) can be punctuated by time-out technology use when a consumer takes out time to consciously use a technology. This could be when someone takes time out to enjoy a game on the mobile phone or when consciously reflecting on the aesthetics of a mobile device. Somewhat similar distinctions are found in Giddens' structuration theory (1984), where ordinary, social life is seen as interspersed with reflective moments, as well as in Carey's treatment of media as transmission and ritual (Carey 1989), in Roger Silverstone's distinction between the ordinary and ritua (Larsen 1998, Silverstone 1994). All draw upon a phenomenological tradition that highlights the "lived" uses of technology, particularly how certain classes of technology (e.g. television, radio, or internet) play a particular role in people's lives. Jensen in particular uses the time-in/out distinction to discuss cultural aspects of media usage, arguing that increased and more readily available media usage has been instrumental in creating the grounds for reflective social action (Jensen 1994). A related concept in the design literature is the concept of transparency or how technologies should afford working "through the computer interface" (Bødker 1991) rather than "on the interface." This has been proposed as the ideal attribute of designing for unobtrusive use (Ekbia 2007, Norman 1998, Weiser 1991). Being related to the distinction between time-in/time-out modes of using technologies, the distinction between transparency and opacity (or reflectivity, see Bolter & Gromala 2002) emphasizes the way in which technologies over time have a tendency to disappear into the background of our attention, preferably only coming to the fore when they break down or when they need attention. Bolter and Gromala (2002) have criticised the focus on transparency or unobtrusiveness as a concept that is too simple to explain how technology is (or should be) embedded into everyday use. Rather, these authors point out the necessary oscillation between transparency and opacity, how both forms of attention are necessary for meaningful use. Things have a meaning beyond their immediate function – teapots, cutlery, or cars have functional qualities, but can also be used as objects for contemplation, expressing identities, holding memories or be attributed to a special place or significance in the life of the individual or the group.

For the purpose of this paper Jensen's (1995) distinction provides a suitable framework since it suggests a process between the two kinds of technology use without sacrificing a relational perspective on them. Time-out relations to technologies is integral to "make the game go on," and new strategies, new knowledge, new reflections on the status of "time-in" experiences can be acquired in time-out consumption mode, as consumers discuss, admire, and generally point their attention towards the device itself. Jensen's original framework entails five dimensions of time-in/out culture.

Time-in	**Time-out**
Integrated practice	Autonomous practice
Social Practice	Aesthetic practice
The ordinary	The extraordinary
Resource	Exposition
Action	Representation

Table 1. Time-in/out dimensions (adapted from Jensen 1997).

In descriptive form, the first dimension, integrated practice/ autonomous practice, describes practices that are either in the flow of life, taking place "within" other forms of practice and practices that stand out and can be circumscribed by time or the attention given to them. Listening to the radio while

cleaning or performing other mundane tasks is a form of integrated consumption; while consciously taking time out to listen to a broadcast or a concert entails that radio listening becomes an autonomous, stand-alone activity.

The social/aesthetic dimension describes practices tied to either ongoing social, everyday work or to aesthetic appreciation or contemplation. In the social mode, consumption of media is part of a general socialization effort, while the aesthetic mode requires an intensified attention to the object of consumption. This could be illustrated with consuming news for the sake of participating in workplace discussions versus devoting time and effort to appreciate the literary qualities of a book.

Ordinary/extraordinary describes the difference between practices that have no readily identifiable beginning or end versus practices that are without identifiable temporal markers and outside of the regularity of the everyday. One example could be driving, which for the most part consists of routine, fixed operations. Seeing a car accident on the road, which for most people count as something out of the ordinary, one's attention is turned from the routine activity of driving to more active considerations of our own driving skills, the dangers associated with driving and so on. As such, the extraordinary prompts our attention to driving, rather than driving as a mundane task.

Resource and exposition is the distinction between usages that have other means than usage as such – that is, usage of a technology to attain some (more or less specified) goal and usage that is reflected as an end in itself or as a means of expression. Many technologies make up a resource for action in the sense of supporting or enabling an activity. Telephony, for instance, can be seen as a resource for coordination and communication efforts and television news is a resource for knowing about tomorrow's weather. However, carrying or flaunting a certain telephone or a certain newspaper carries a wide range of connotation of lifestyle or habitus, indicative of belonging or distinction (Bourdieu 1987).

The action/representation dimension suggests that usage can take place as a means of "carrying out" something as well as having some representative meaning in and of itself. A camera represents a form of activity (taking pictures), but at the same time can represent a reservoir of culturally embedded connotations such as quality, professionalism, nostalgia, smartness and so on.

The time-in/out distinction has been mainly applied into the communication and media fields (e.g. Larsen 1998, Silverstone 1994). Larsen (1998), working with everyday radio listening, argues that the distinction is rarely employed in empirical studies. The time-in/time-out distinction has not been applied to information systems or mobile technology studies. For the purpose of this study, drawing on the above mentioned literature, we choose to define time-in use as the kind of use that is integral to other activities, that is, they are contained within other forms of activities, while time-out use is external to other activities and constitutes a singular, circumscribed activity in and of itself.

3 METHODOLOGY

This study is part of a larger research project on future mobile services. The aim of this study is to increase the understanding of how technology use evolves over time and the processes by which the user and technology mutually influence each other. We apply a longitudinal field study approach inspired by interpretative information systems research (Walsham 1995). In the remainder of the section we will briefly outline the research context, design and analysis.

3.1 Research Context

This leads us to the methodological consideration of how to study the way in which multifunction device technologies play role in changing the "everyday." For this study we gave 16 participants a new 3G iPhone, including the basic voice, SMS, and data plan for a 6-month period (September 2008 to March 2009) that commenced shortly after the European product launch. In exchange, participants

committed to extensive data collection obligations. During the first month, one participant's phone broke; therefore, she could not continue the study. Participants were selected from a graduate-level e-business course. The mixed gender group ranged in age from 22 to 51and all were working full- or part-time. We sought a balance of commonality (enrolled at the same master program) and diversity (age, gender, and family situation) when selecting the participants. The 3G iPhone was chosen because of the global hype surrounding it along with the embedded technological features, such as being one of the first well functioning consumer touch screen-based mobile phones on the European market, its integration with iTunes and the App Store, and its internet functionality. Furthermore, its aesthetic qualities were highly praised, and it drew a very distinct attention in the market, not least driven by a certain amount of secrecy and anticipation built up the internet by users of the current iPhone v. 1 (the earlier, less advanced version). Lastly, the iPhone was not primarily targeted to business users, as were many of the competing smart phones. At the time of its launch, the iPhone represented something extraordinary, and therefore a rich artifact for our exploration.

3.2 Research design

To ensure data richness and to follow the evolution of usage behaviour, we collected data trough three surveys (beginning, middle, and end of study) three focus groups and 60 interviews. Prior to receiving the iPhone, participants completed an extensive questionnaire about their use and attitudes of ICT (including mobile technology). The survey was repeated in the middle of the study, and again at the conclusion of the study. The survey included a number of items, adapted from previous research, addressing attitudes about ICT use and also items tracking attitudes inspired by the work of Triandis (1980). Not intended for quantitative evaluation, these surveys provided a gauge for understanding trends in usage and attitudes that were used to help formulate focus group and individual interview questions.

Approximately 2 months into the study, participants were divided into three focus groups to discuss their usage of the devices. The research followed established protocols for group interviews (Krueger & Casey 2000, Morgan 1997). Each focus group session lasted no more than two hours. One researcher facilitated the discussions and one took field notes. The focus groups were video recorded to enable more accurate analysis; while at the same time following standard privacy guidelines. The sessions concentrated upon how the individuals used their device and how and why it had changed over time. The group discussion format enabled participants to share their experiences with each other and educate each other about their discoveries, e.g. how do you download songs from iTunes to the iPhone. A total of 60 interviews were carried out, each participant interviewing in four different settings (A-D): Interviews A lasted for 30 minutes and were conducted by one researcher. Interviews B lasted for 30 minutes, and were conducted by two researchers: one taking notes and one asking questions. Interviews C took approximately 60 minutes and were carried out over Skype with one researcher. Interviews D took 60 minutes with two researchers. Interviews A and C were structured with some room for exploration of specific issues that had emerged from the survey. Two of the discussion questions explored during interviews A were as follows: "In the survey at the beginning of the study, we asked 'What would you like to do with a mobile phone that your current phone cannot?' You listed [the response each participant gave on the initial survey]. Since the iPhone can do all of those, please let me know how much you use those features and how that compares to what you expected." The second question posed was: "Do you think the iPhone has significantly changed the way you do things in your life?" A central question to interviews C was "How have things changed so that you just do them without thinking about it?" In interviews B and D which were semi-structured around three overall questions "Why is the iPhone useful? How do you interact with it and when? How has the iPhone changed your media usage?

3.3 Data analysis

The use of the time-in/out distinction for understanding our data (coding and searching for anomalies) applied a macro-sociological concept that was originally intended to express some overall tendencies in late-modern social life in order become a more pragmatic concept that explains structurational aspects of technology use. When coding the data we searched for any mentioning of use and change of use from a set of 277 individual statements related to the use of the iPhone. 42 statements were not sufficiently classifiable within a discrete time period, and thus left out of this paper. The statements were put into a spreadsheet and coded by participant, pre-, mid- and end of the field study, and the time-in/out distinction. Table 2 summaries the coding schema and the number refer to the number of classified statements.

	Beginning	Mid	End	Total
Time-in (I)	18	47	35	100
Time-out (O)	81	38	16	135
Total	99	85	51	235

Table 2. Coding schema and summary of coding

From a methodological perspective, the interpretative scheme for the data rests on the assumption that the technology in question entails the ability to change and "script" certain kinds of behaviour and experiences in the user; and that behaviour develops in a co-evolution between the artifact, the human, and the context. This behaviour might be preferred (or intended) but also, as we shall see, it might have unintended consequences. This approach signifies a more pronounced attention to the artifact in IS research (Orlikowski & Iacono 2001). Rather than look at the effect or impact of a particular technology, applying a phenomenologically inspired concept such as the time-in/out distinction that looks at the relational dimension of users, technology, and time enables us to inquire into the ongoing shaping of the relationship between a concrete technology and its users. By repurposing the time-in/out distinction from the original inspiration, this paper marks a pragmatic move that allows the distinction to be applied to technology products and other artifacts.

4 EMPIRICAL FINDINGS

The iPhone 3G was launched in Denmark on July 11, 2008. The launch was not just a quiet introduction on the market, but was preceded by a huge amount of pre-release rumours and hearsay on pricing, calling and data plans etc. Much of this took place on internet blogs that discussed Apple products or the iPhone specifically, as well as smart phones in general. Also mainstream public media presented the iPhone. One obvious piece of evidence for the iPhone 3G being a highly coveted piece of gear was the 500+ customers who took time-out to lining up in front of the first store to carry the phone on the night of July 11. Though critical voices were present, the general impression was that the iPhone represented something new, a thoroughly designed piece of life-style paraphernalia that was relatively expensive and quite exotic. On the night of July 11, the first iPhone for sale in Denmark was driven to the store in a large limousine, complete with bodyguards, spotlights, and accompanying fanfare. This was the background upon which we presented the iPhone to our 16 participants, who all expressed excitement about getting their hands on one. We attempt to capture the experience of living with an iPhone by explicating interviews conducted at different occasions throughout the study.

4.1 Early usage – Time to take time-out

With the hype around the iPhone, many participants spent time showing off their new phones to others. A number of the participants described how they deliberately took time-out. For instance, Participant 1 (P#1), explained how showing his phone to others elicited responses such as "Wow,

what's that?" Similarly, P#2 describes the time she spent flashing it in the metro, striking up conversations with strangers such as "What is that? It's an iPhone." P#15 liked showing it off to friends, as she explains:

"My boyfriend is not easy to impress with stuff, but he was convinced, he was persuaded: 'Can I play with your iPhone?'" It's fun to persuade people. They are caught by the cool factor."

Besides taking time out to show the phone, the participants spent much time exploring their new devices and learning how to use them. P#1 experimented with the iPhone features that replicated the functions of a laptop computer. P#8 downloaded wallpapers, games, radio stations, music, and familiarized herself with the integrated MP3 player. She explained the enthusiasm that drove her tinkering: "New stuff is satisfying, of course. How could it not be?"

P#11 likes to "mess around" with technology and viewed the iPhone as a toy to be played with. He studied development tools to learn how to make programs for the device. P#16 played with the camera function and the calendar with the intent to integrate them in his daily activities. P#12 explained how the interface was not easy to use, so she spent time learning how to utilize it. She also downloaded various add-on programs. She explained as follows:

"The iPhone is a new product. It's interesting to see what people make. What applications are there? You really have everything in the apps."

Many participants took time to customize their phone settings and features. P#10 set his scheduled alarms within the time keeping function. Others, such as P#9 made music playlists for their iPhones. As participants started using their phones, some expressed difficulty using the device because of the attention required to type on a small virtual keyboard.

People put their new phones into practice, thereby making the phone part of daily practice (time-in). The Facebook app became a staple for many participants. Early in the study, Ps#9 and 10 expressed the value they derived from the MP3 player. Games captured the attention of Ps# 7, 8, 12, 15, and 16. Ps#11, 12 quickly became hooked on email, whereas P#2 made little use of email. At the same time, Ps# 6, 8, 10, 12 expressed their affinity for GPS features. Ps#8, 10, and 16 spent considerable time watching YouTube videos. Participants began other uses as well, such as instant messaging (P#2), ripping videos on the computer to send to the iPhone (P#10), using Wikipedia to solve disputes and checking the outcome of other sporting events while attending a match (P#13).

4.2 Mid-Study Use – Becoming a integral part of life

By the midpoint of the study, P#7 still found her phone exciting and enjoyed conversing about it, but for others the device's conversational currency waned and little time was spent showing off the phone to others. P#12 explained how she did not conspicuously flash the phone for others to see.

As participants became more familiar with the device, they developed usage habits. Some participants became regular users of the Facebook app. In fact, P#12 described her use as an addiction. Listening to music and watching YouTube videos became a regular activity for many. Mobile email became an integrated part of many participants' lives. The email users avoided replying to emails from their phones because typing was too laborious on the iPhone, mainly due to the keyboard and the autocorrecting dictionary. Most of the participants were very familiar with T9 phone keypads which they found easier to use.

Others adopted features useful for their particular time-in lifestyles. For example, P#2 downloaded an application to help her count rows while she knit clothes. P#3 used software to track his speed and distance during his morning jogs. P#16 became a heavy user of the calendar and address book. The mobile internet browser was widely used; however, Ps# 4, 5, 7, 9, 13 emphasized that they used the mobile browser for much more targeted purposes than they used the browsers on their laptops. Many participants used their iPhones to read newspaper websites, especially during "boring" times in their

daily routine, such as while commuting or attending classes. P#16 scanned news headlines rather than reading deeply.

P#3 explained how the iPhone replaced some computer functions because his laptop took too long to boot up. P#2 explained that before she had her smart phone, she kept her computer running in case she needed it. As a result she spent a lot of time on the computer "distracted" from what was going on around her. Since the iPhone is always with her and ready for use, she uses her computer less and her ICT use became driven more by life activities instead.

For various participants, experimentation with the device features devolved into minimal or non-use of those functions. For example, while some participants still downloaded applications from the App Store, they did it much less frequently; and many stopped experimenting with new programs altogether. P#11 stopped using the calendar function because he found data entry inconvenient and did not like the visual presentation of his appointments on the iPhone interface. GPS use stopped for some participants and was reduced for others. Some simply did not need it because they did not travel to unfamiliar places, whereas P#10 preferred his voice navigation system in his car so he would not have to focus on a pictorial map while driving.

4.3 End-of-Study Use – The mundane time-in device

At the end of the study the iPhone had become an in time device an integral part of life. As P#9 said: "When it came out it was cool. Now it is common."

Some participants were self-proclaimed "gadget lovers," and had an initial inclination to tinker with and to personalize the device at the beginning of the study. By the end of the study, experimentation and exploration had almost ceased completely. Participant #11 sums up this phenomenon by explaining that at the beginning of the study, the iPhone was a toy, but it no longer captures the imagination. He explains:

"If I went out and bought a new iPhone, I wouldn't be excited. I would just open it up and use it like I have the past few months."

P#9 summed it up the experience as follows:

"It's like being in love, you have to touch it all the time…but then it's just part of everyday life"

As the participants became more familiar with their phones, the use became both more selective and habitual. P#2 stopped using instant messaging because it became redundant with the other ways of communicating possible through her iPhone. P#16, who was watching YouTube and playing games as "time killers" at the mid-point ceased both activities by the end of the study. But his use of the calendar function became a self-described habit.

For most, reading email any time, any place became integrated into their routine. (Writing email was still reserved primarily for computers.) For some Facebook users, use of the application became unconscious and they checked it without consciously thinking about what they were doing. Aware of the degree to which Facebook was a part of her routine, P#12 made the deliberate decision to use it less, in order to "break the addiction."

Many used the iPhone as a substitute web browser when their laptops were away from a WiFi connection. It served as a substitute, rather shifting the way participants used the internet. P#5 explains it as follows:

"You'd have to change your whole perception about the situation in which you use the internet. You're locked into using it in the old-fashioned way. It's difficult for people to get out of their comfort zone. For me, whether I'm at home or at school, I have my laptop. It is easier to use the internet on the computer because of the big screen and the overview it [the screen] gives."

Conversely, as people became more familiar with the device and its interface, some functions became more integrated in their routine. P#9 sums up the integration with the everyday routine: “You could almost live your whole life with this device.”

5 ANALYSIS AND INTERPRETATION

To a large degree, the empirical findings that gradually emerged from the research centered upon the transformation of the users, the use, and the technology over time. It is not a great surprise that even new, fancy technologies gradually become mundane and “taken for granted” in the lives of the users as users change their view of the technology. In the remainder of the section we present the analysis of the empirical data along the distinction of time-out and time-in over time. At the end of the section we provide our interpretation of what has happened.

5.1 Time-out/in analysis

None of the participants had owned iPhones before the study, and none had used data services or internet extensively on their own phones. When the participants first got their iPhones, they all had a distinctively playful attitude towards using the artifact and took time out from other daily activities, thereby becoming an autonomous practice. It was viewed as a device that stole time from ordinary everyday activities, making it extraordinary. Instead of watching TV, the participants spent many hours exploring, discovering, and learning the different features, such as downloading apps from iTunes and trying out GPS. Learning to use the artifact happened through experimentation and discovery. One participant said “I normally read the manual. Was there a manual for the iPhone?” indicating that her approach to the device was exploratory and deliberately disorderly by not conforming to any specified method to learn how to use it. The low usage barrier also makes it simpler to integrate in everyday practice and thereby making it time-in. During the early stage the users were not the only ones who gave the technology a lot of attention. The phone received social attention from bystanders who at the beginning of the study constantly reminded the participants of the special status of the iPhone. It was an extraordinary device that brought about autonomous, aesthetic practices of exploration and social admiration. The initial playfulness and the fascination of the technology consequently lead to use as an end by itself (exposition) – not with a specific purpose (e.g. calling or searching), but mere idling with the device. This was also expressed as time killing when commuting or feeling bored in class.

As time went by (a few weeks into the study), the early fascination and playfulness declined. The device turned into “a phone” for several of the users, thereby becoming an integral part of daily life (i.e. an integrated and social practice). Only during specific occasions, such as commuting on mass transit, was the device used in time-out mode. In the mid stage of study many of the users discovered a number of limitations with the technology, such as the fact that you cannot record video or enlarge the virtual keyboard when writing SMS.

Later in the study we saw renewed interest and increased usage by several of the participants. In particular, Facebook became an integrated practice. Participants used Facebook to keep track of how friends updated their profiles, though they did not take the time to update their own profiles via the phone. One of the participants was constantly checking Facebook updates so it became a vice – a habit the she felt she had to break. This might be the most extreme version of time-in. E-mail and SMS had similar usage patterns. It is mainly used for checking mail or SMS, not writing. Only under specific circumstances did they dedicate time in order to write an e-mail or SMS.

5.2 Interpretation

One obvious lesson is that technology must constantly re-contextualize itself in order to be loved. Love at first sight most aptly describes the initial situation for most of our participants in the study.

The waning love of the human users was a result of becoming mundane – becoming a "time-in" piece of hardware rather than a thing that demanded attention or interest. The story told is one that emphasizes the ongoing oscillation between transparency (time-in) and opacity (time-out) that makes a multifunctional technology such as the iPhone work. The story that we saw in our empirical data related usage as a continuous process through which becoming mundane or transparent of technology was one of the outcomes. The data from this longitudinal study indicate that technology use may be either in time-in, time-out. A fundamental implication is that the time-in/out distinction can be used to gain a better understanding of how an artifact changes from being "technology" to being an extension of the user that it vital and integrated into daily life. While the extraordinary may garner great interest, it is the seamlessly integrated that has the greater impact. As McBride (2003) indicates, once ICT becomes an essential part of a user's daily life, the technology becomes embedded in the social landscape. At this point, it becomes impossible to return to a situation that excludes the technology.

Summing up the analysis, we find it significant that the use of the smart phone changed dramatically over time. Indeed the artifact changed from a coveted, exotic device to become a mundane tool. This process entailed a parallel change in the use. Such change underlines the challenge to information systems research to understand the dynamic nature of the artifact and the human-technological relations that artifacts and contexts make possible. The implication of the time-in/out distinction is further discussed in the next section

6 DISCUSSION

Concerning the time-in/out distinction, our analysis shows that a significant impact of the iPhone stems from its omnipresence in the users' daily lives. The participants almost always have their iPhone with them as an integral part of their daily life. Thus they are always connected to the internet and make use of the services that this connectivity provides. The tools that are integrated into the device such as music player, camera, iTunes, App Store, and other applications add significant value to the iPhone. However, many features are viewed as inferior substitutes to equipment dedicated to a single purpose. Preferences for tools and services varied by individual participants, but all felt that the iPhone was a *satisfactory*, not *optimal*, device for many of its uses.

In this study, the time-out fascination with the integrated technologies evolved gradually into time-in, ordinary use of a variety of tools for living daily lives. The time-in/out distinction gives insight into the process by which using an "extraordinary device" changes over time. We argue that time-out situations do not disappear completely over time. Rather, when time-out situations occur later in the study, they seem to be more akin to a resource, to something that provided participants with a faint experience of being "connected" or of being "able." Time-out in the beginning of the study was intensely directed at the object and the novelty of ownership. The social/economic distinction available for the participants in terms of "conspicuously consuming" the iPhone as a lifestyle gadget provided situations where the iPhone and associated connotations such "cool," "social phenomenon," "fashion item," etc. were strongly present. However, by virtue of its mobility and omnipresence and with the "object fascination" fading rapidly, the iPhone became a background resource, even when participants were devoting some amount of time to attend *to* the device.

Arguably, the convergence of media as well as technical progress in device form-factor and performance is a driver for changing the traditional sense of cultural product being stand – alone, ritual moments. Jensen and Jankowski (1991) unpack this situation in an exposition that is worth quoting in some length: "The constant availability of particularly visual mass communication in the modern world – in the home, the street, the workplace, and in transit - has meant the saturation of much social time and space with cultural products. This has resulted in a qualitatively novel media environment, where the discourses of media and everyday life may become increasingly indistinguishable. If one traditional purpose of cultural practices has been the creation of a time-out from everyday life, the modern merging of mass communication with the rest of the social context may be creating an almost ceaseless time-in" (Jensen & Jankowski 1991, p. 40)

The study that we have reported supports Jensen and Jankowski's argument, and gives an empirical grounding for their theoretical account.

7 CONCLUSION

Using the time-in/out distinction, this paper shows how the particular smart phones that were the centrepiece of the study gradually went from having representative meaning that was greater than functional value to being merited according to the ability to blend in with other activities. Jensen's (1994) distinction highlights the way in which technologies can be both integral to the flow of daily activities and can also facilitate a reflective distance from the mundane. In the case of the iPhone, the time-in/out distinction shows how new, personal and portable media devices give way to a time-in integration of activities that previously occupied time-out situations.

The approach taken in this paper contributes to our understanding of continuous technology use. Our application of the time-in/out framework gives insight into the mechanisms and dimensions for studying the transformation from extraordinary to the integrated and ordinary, and it contributes with a simple vocabulary for describing usage characteristics and change over time. There clearly are important lessons to be learned for practitioners and researchers alike in understanding how technologies change and how users' validation of artifacts is not a pre-hoc process, but an ongoing, dynamic process that hinges on a variety of factors in the technology itself and in the context of the technology and the user.

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